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A VISIT TO THE TERNERY AT WELLS-BY-THE-SEA.

BY FRANCIS HEATHERLEY, F.R.C.S.

(PLATES II. & III.)

ON our arrival on June 14th both Common and Lesser Terns were beginning to hatch out. There were two distinct colonies of Lesser Terns—one in the shingle just above high-water mark, at a place called the East Point, by the side of an almost silted-up creek, and another about three hundred yards to the west on an old beach inland of the sandhills. According to Pat Cringle, who has succeeded his father as bird-watcher, and whom we found an intelligent and observant guide, there were about thirty nests in each colony.

The Common Terns' nests were scattered along about a mile and a half of the shore, most of them being amongst the marram-grass. When the first eggs were laid Cringle counted nine hundred eggs, and he estimated the total number of nests at the time of our visit at over one thousand.

The Common Terns' eggs laid amongst grass had a nest of grass; those laid among the pebbles often had a collection of broken cockle-shells, but this was not as markedly the case as with the Lesser Terns. Those laid in sand had nothing round them, and were the most difficult of all to see.

The most peculiar nest we saw was one on an old mud-flat about two feet from a large patch of purplish-brown moss. The

three eggs were surrounded by a band about four inches wide, made up of a mosaic of irregular pieces of moss placed side by side and right side up. Close to this nest Mr. Frank Southgate and I found a nest of the Common Tern containing a chick and egg overrun with ants. The chick was quite sore about its back, and kept wincing and shaking itself under their attack. After freeing them from ants we moved them to a spot about thirty feet away, which seemed free from these insects, obliterating the old nest made of grass and making a new one. We then retired to the neighbouring sandhills, and whilst having our lunch watched events through our field-glasses. The old bird pitched momentarily four times at the old site, the fifth time about ten feet from the new nest, and the sixth time quite close to it, and then went on to it. On inspecting the nest afterwards we found it again overrun with ants.

Some of the Common Terns held their wings up almost perpendicularly for quite a second before folding them; some did this much more than others. In folding their wings there seemed no rule which should lie uppermost. In the same bird, at an interval of only a few minutes, the order was changed.

During two days of our fortnight's stay there was a strong and cold north wind, accompanied by widespread mortality amongst the chicks. Cringle pointed out that it is not the cold which is so fatal as the wind, which, by making ripples on the water, prevents the old birds from being able to see to fish. I took a good many photographs of the young being fed, and was surprised to find how seldom this takes place even in fine weather; hardly ever were the intervals shorter than half an hour. The approach of the male with a fish was heralded by the female looking up and screaming. Although I could not detect any difference in the notes, the young were better informed, for they immediately scrambled out from under their mother, waving their wing-stumps frantically, and with widely open mouths calling "cheer, cheer." Then the male would alight with a whitebait or sand-eel held crosswise in his beak, and it was in a flash transferred to the nearest chick, who swallowed it head first and retired under his mother. Occasionally there would be a long wait after the heralding cry, due to the male with the fish being pursued by other Terns. Sometimes the male had no fish when



he alighted, but put his beak into the chick's mouth and apparently gave it liquid food. I never saw the old bird eject food on to the ground for the young to peck at, as does the Black-headed Gull.

On one occasion the male brought a fish like a big minnow, which was as long as, if not longer than, the chick. The chick got it half-way down, and there it stuck. The male who was watching gave the protruding part of the fish a nip, but it was no use, and the chick, dropping it, the male flew away with it, but returned in a few seconds, when another chick had a try with the same result. This time the old bird, after picking it up and flying away, returned, but the fish was not visible. The chick looked very comical staggering about, but unfortunately for me the incident took place during a sunless interval. We several times came across small fishes and shrimps which had apparently been dropped during scrimmages, and we tried to get the chicks to swallow them, but failed. Once or twice the female got off her eggs when the male came down and walked about a little, as if to stretch her legs.

The following day, as this bird had hatched out all her three eggs and therefore might not always be in the same place, my partner, Mr. Earl, thought it would give me a better chance if there were two nests in the field of view; so he transferred another Tern's chick and egg to a spot about three feet from the other. The plan did not answer, because the new birds did not claim their offspring. What did happen was that after about the second visit our bird saw the egg, and it proved a great attraction—half the times she alighted at the new site instead of the old, and sat on the egg. One photograph I took shows her sitting on the new nest with her wings very much spread out, as she was covering four chicks and an egg at the time; she certainly made no difference between the strange chick and her own.

Although the Lesser Tern, owing to its stupidity or superior boldness, should have yielded the best photographic results, we in the end only had very poor photographs, because after the first few exposures we went on to something more difficult. When we came back to them after dealing with the other birds we encountered a difficulty we had not met with previously. The local barber had amused Mr. Earl by affirming that Terns did not sit

on their eggs, but let the sun hatch them out. We found there was more truth in the theory than was at all pleasant. We had a succession of blazing hot days, and however carefully we concealed the camera, its presence near the nest seemed quite enough to decide the bird to let the sun do its work; this was notwithstanding the fact that they had all reached the last stages of incubation, when most birds sit closely.

The two species probably nest in separate colonies because they do not agree together. On one occasion I had an instance of this whilst trying to photograph the Lesser Tern. A Common Tern alighted about ten feet to seaward of the nest, and stood there calling. Then it was joined by its mate, which settled down as if on eggs. Presently the standing bird waddled up to my Lesser Tern's nest which contained a dead and a live chick, and, standing over them, shouted to the Terns overhead. Then it picked up one of the chicks—I thought it was the dead one—and dropped it; then it picked it up again and walked two or three feet away, and dropped it again. This time I could see it was the live chick struggling on its back. Then it picked it up, and, flying into the air, pitched about fifteen yards to seaward. I was so enraged at seeing my last chance of photographing the Lesser Tern destroyed that, instead of photographing this unique incident, I pursued the marauder, and after a little search found the chick uninjured, and the spot where the Common Tern had been sitting hollowed out as if she had been about to lay. The Lesser Terns did not come down to their nest, nor did they show any fight during the raid.

Two years ago I saw a good deal of the Arctic Tern in the Hebrides, and, after watching the Common Tern for a fortnight, have come to the conclusion that it is possible to distinguish them when flying. The Common Tern has a much less jerky flight than the Arctic, and hovers in fishing a great deal more than does the Arctic; in fact, it more nearly approaches the Kestrel than any other bird I have yet watched in this respect. A third distinction which Cringle pointed out but which I cannot confirm, owing to not remembering how the Arctic Terns carry their tails, is that the Arctic Tern more often carries its tail closed than does the Common. This, I presume, accords with their different styles of flight, as I have noticed in calm



MALE AND FEMALE RINGED PLOVER AT NEST.

weather that the Swifts near the ground have their tails well spread, whereas those flying high with less steering to do carry them closed.

The Terns seemed very sensitive to changes in temperature; one I was working at sat gaping and panting in the morning when it was hot and sultry, and shivering in the afternoon when it grew overcast and a wind sprang up from the north.

Since leaving on June 24th I have heard from Cringle that a great many of the young birds died during subsequent rough weather, and that during some exceptionally high tides so much of the Point was flooded that had they occurred during the breeding season quite five hundred of the Common Terns' nests would have been flooded, and I presume one of the Lesser Tern colonies would have been destroyed. He also mentions finding a nest of the Common Tern with two eggs in it on Aug. 17th.

We found the Ringed Plover more intelligent than the Terns, making much more fuss about the camera. It certainly is not a timid bird—in fact, its boldness made Mr. Earl call it the “cock robin of the shore.” I found it fairly easy to distinguish the male by its ring being a more intense black. They seemed to relieve one another, in sitting, every half-hour. We came across the feathered skeleton of one bird with the remains of the blunt end of the egg fixed in the pelvis, showing the mode of death.

In the case of many birds, *e. g.* Curlew, Peewit, and Golden Plover, the books say that the young leave the nest as soon as hatched, while I have found that they remain in the nest upwards of sixty hours after hatching; but as regards the Ringed Plover, it seems literally true, the chicks wandering off within half an hour of being hatched to feed on the sandy shore under the paternal eye, leaving their mother to hatch out the remaining eggs. They are much more advanced when hatched than the Terns. All the nests we saw had four eggs, whilst among the Terns this number was exceptional.

Although we examined a good many clutches of Ringed Plover's eggs, I could detect no difference in coloration, whereas the difference in coloration amongst the Tern's eggs was a marked feature. I have noticed this variability amongst other birds that lay their eggs in colonies. It would be interesting to

know whether this is the rule, as in that case it would lend support to the theory that extreme variability is a help to the birds in distinguishing their own eggs.

We found the Ringed Plover very combative. Owing to a number of clutches hatching out simultaneously there was a large increase one morning in the number of chicks on the sand, and there were constant fights going on amongst the old birds for "spheres of influence." The chicks in feeding took quick little runs just like their parents. The old birds did not seem to do any teaching, but just remained in their vicinity.

In fighting, the old birds lowered their heads and raised the feathers of their backs. Occasionally all four would demonstrate in this way. One pair actually fighting seemed to have their beaks interlocked, and one was banging the other down on the sand.

We left Cringle one day to watch if a Lesser Tern returned to her nest, and he reported a fight which ended in one bird returning, soon after the combat had terminated in the vanquished flying away, chasing two of the chicks and killing them one after another, shaking them as a terrier shakes a rat. The Ringed Plovers frequently simulated disablement to lure us from their nests.

There were a good many Redshanks breeding in the marram-grass. Cringle drew our attention to the fact, of which we had no previous knowledge, that the sitting bird twists the grass together overhead as she sits on the eggs. As in the Snipe, the eggs are laid in the middle of a clump, so that the stems form a hiding screen all round, but by twisting the grass into a tangle the eggs are also hidden from above. All the nests we saw contained four eggs lying point to point, and there were two runs, so that the ground plan was like the shape of a hairpin with slightly separated legs, and the eggs at the blunt end. The runs were each about two feet long, and there was a slight gap between the grass-stems both back and front of the eggs. Curiously, the two nests we worked at did not show this twisting of the grass; in one case the grass perhaps was not long enough, but in the other I think it was due to the bird, when disturbed, rising straight into the air instead of stealing away on foot.

The Redshank was the most wary of all our sitters, cautiously approaching her eggs long after the surrounding Common Terns

had settled on their eggs, and being the first to leave. The only nest we found was due to Mr. Earl flushing the bird, but Cringle says he can always find them by looking for tangles in the grass. According to Cringle it is almost impossible to make a Redshank desert its eggs, even after having been struck at with a stick, or having been caught by a dog and losing some of its feathers it will return. With its sylph-like figure, dainty steps, and fluty note, it was the prettiest bird we met with at the ternery.

There were a good many Partridge nests, and Mr. Earl pointed out that the eggs were smaller than of those that frequent arable land.

Whilst with Mr. Southgate I saw three Redshanks perching somewhat uncertainly on the branches of a dead bush. Had our focal plane shutter been in working order we might have got some good photographs of Redshanks flying. In crossing the marsh, if Cringle happened to let his dog wander, it was soon followed by an ever-increasing mob of Redshanks, some of them only two or three feet above the ground; once there were about thirty of them, all evidently suspecting his intentions.

The following notes have been sent me by Pat Cringle, the bird-watcher:—

“The Lesser Tern makes its first appearance here about the last week in April, nearly always two or three days before the Common. The Lesser Tern is the first to lay, but not until two or three days spent in making experiments, each bird making two or three nests before deciding on one. I generally find the first eggs about May 24th, but this year I saw some on May 18th. I find that after laying in the same place for a year or two the whole colony will shift to another place. They do not seem to like the Common Tern at all, and although they are half as small again, they seem to be the masters, as they drive them away if they come near their nests. When they have young they are not so fierce as the Common Tern, but they will make a good deal more row when danger is near. If one is a bit suspicious of anybody being about it seems to have a warning note, for as soon as it utters it the others all rise off their nests at the same instant. As soon as the young can fly they get to an open place where they can see a good way round them, and are fed there by the old birds until they can fly to the edge of

the harbour where they are safer. The old birds then teach them how to fish, flying beside them, and diving and catching fish, which they take to the shore, followed by the young, to whom they give the fish when they alight.

"The Lesser Tern's style of fishing is quite different from the Common Tern's. It flies very much quicker, and keeps on chirping till it catches a fish, with which it flies up into the air. After swallowing the fish the Tern flies a good way very quickly before looking for any more.

"The Common Tern is generally a day or two later in laying, but the majority begin laying simultaneously. The eggs vary in colour and size. I have seen eggs nearly white and others almost all brown, and some no bigger than Thrushes' eggs.

"When hatching they are very fierce, and allow no birds to come near the ternery except those that lay with them. I have seen one get off its nest and chase a young Lark that could hardly fly, and kill it on the spot. They are also great enemies of the Partridges. In one season I have picked up as many as eight that had been mobbed and pecked to death. When attacked by Terns a Partridge crouches on the ground; the Terns collect from all around and make awful darts at it, diving straight down, and then hovering over it like hawks. The Partridge is often too frightened to fly away, and then at last one of the Terns gets in a fatal blow. They drive holes into the Partridge's head as if done with a nail. They take their young away like the Lesser and teach them to fish, and when preparing to migrate they all collect in a bunch a mile or two away near the sea for a day or two before they finally go, in the last week of August or first week of September.

"The Redshanks remain here all the year round, as the marshes are full of creeks and mud-flats, from which they can get food during the hard weather. If the weather is open pairing begins about the first week in March, but the majority of birds do not begin to lay until the latter end of April, although I met with eggs on the first of the month. When walking through the nesting-ground some fly quite close, shrieking, while others—the males, I think—soar very high up, like a Meadow-Pipit, and sing a peculiar song. The birds make several nests before laying, but when one has chosen the place she lays four eggs on

the bare sand, and then makes the nest of dried grass afterwards. The male seems to keep watch at a considerable distance from the nest. Their behaviour when sitting varies, some sitting very close, whilst others are shy. One bird whose nest I frequently passed this year would allow me to touch her back as she sat on the eggs, and I have before now accidentally trodden on a Redshank sitting on her eggs. Sometimes the young leave the nest as they are hatched out, but this is not always the case, as I have found them in the nest the day after they were hatched. As a rule the old birds take them to the little creeks to feed, where they find small worms, sand-hoppers, and insects. When they are a day or two old they can already run very quickly on their long legs and hide, so that it would take hours to find them, although you saw within a little where they went into the weeds.

"The Ringed Plover is not nearly so shy as the Redshank. Pairing begins early in April, when the males can be seen fighting for the possession of the females. They fight very fiercely, rushing at each other with their beaks down and feathers bristling up. Sometimes four or five birds will be mixed up in one fight. They generally begin to lay in the last week in April. The nest is nearly always lined with small stones, but sometimes, when under the grass, it is a mere hollow in the sand. They often lure you away from the young when recently hatched, opening their tails and drawing them along like fans, or tumbling and scuffling along with one wing up and the other down, as if wounded. They do not forget to go the opposite way to that the young are running. Very often you can see hundreds of chicks running about on the edge of the sands, waiting for the tide to go out. Old and young keep together until August. In winter the Ringed Plovers form flocks, and frequent one place all the time if not shot at."

THE PRICES OF ANIMALS.

BY GRAHAM RENSCHAW, M.B., F.Z.S.

THE following list of prices of living zoological specimens may be of service as a supplement to Capt. Flower's most interesting article on this subject ('Zoologist,' *ante*, p. 281). Most of them have been noted during the last ten years, but a few are taken from very much older records, as will appear.

Class MAMMALIA.

Order PRIMATES.

Family CERCOPITHECIDÆ.

Cercopithecus diana, Diana Monkey.—£2 10s.

Papio mormon, Mandrill.—£30 (Wombwell's auction at Edinburgh, April 9th, 1872).

Family CEBIDÆ.

Mycetes seniculus, Red Howler Monkey, one year old.—£8.

Nyctipithecus vociferans, Douroucoulis.—£1 10s.

Family LEMURIDÆ.

Lemur fulvus, Brown Lemur.—£1.

L. catta, Ring-tailed Lemur.—£1 10s.

L. varius, Ruffed Lemur.—£4.

Galago garnetti, Garnett's Galago.—£2 10s.

Loris gracilis, Slender Loris.—£1 5s.

Perodicticus potto, Bosman's Potto.—£1 10s.

Order INSECTIVORA.

Erinaceus algirus, Algerian Hedgehog.—10s.

Order CARNIVORA.

Family FELIDÆ.

Felis uncia, Snow Leopard.—£200.

F. nebulosa, Clouded Tiger.—£30.

F. temmincki, Golden Cat.—£3. The determination of the species seems, however, open to doubt.

F. serval, Serval Cat.—£5.

F. caracal, Caracal Lynx.—£8.

F. concolor, Puma.—£20.

F. onca, Jaguar.—£40 (an old specimen).

F. tigrina, Margay.—£1 10s. (six months' kitten).

Family VIVERRIDÆ.

Viverra civetta, African Civet.—£5.

Genetta senegalensis, Senegal Genet.—£1 10s.

Poiana poënsis, African Linsang.—£3.

Arctictis binturong, Binturong.—£8.

Crossarchus obscurus, Kusimanse.—£1 10s.

Family HYÆNIDÆ.

Hyæna striata, Striped Hyæna.—£8 (young).

Family CANIDÆ.

Canis zerda, Fennec Fox.—£1 10s.

Lycaon pictus, Cape Hunting Dog.—£20.

Family PROCYONIDÆ.

Cercoleptes caudivolvulus, Kinkajou.—£1 10s. to £4.

Bassaritis astuta, Cacomistle.—£45 (pair).

Family PHOCIDÆ.

Phoca vitulina, Common Seal.—£5.

Order RODENTIA.

Family SCIURIDÆ.

Sciurus maximus, Malabar Squirrel.—£1 10s. to £2.

S. prevosti, Prévost's Squirrel.—£1 to £1 10s.

Xerus getulus, Getulian Ground Squirrel.—12s. 6d.

Cynomys ludovicianus, Prairie Dog.—£1 5s.

Family DIPODIDÆ.

Dipus jaculus, Egyptian Jerboa.—5s. to 10s.

Pedetes caffer, Cape Leaping Hare.—£5.

Family MURIDÆ.

Platacanthomys lasiurus, Malabar Spiny Mouse, 12s. 6d.

Hydromys chrysogaster, Australian Water Rat.—£1 5s.

Family OCTODONTIDÆ.

Myopotamus coypus, Coypu Rat, £2 to £2 10s.

Family HYSTRICIDÆ.

Atherura africana, West African Brush-tailed Porcupine.—£2 10s.

Family CHINCHILLIDÆ.

Lagostomus trichodactylus, Vizeacha.—£1 10s.

Family DASYPROCTIDÆ.

Dasyprocta cristata, Golden Agouti.—£1 5s.

Order UNGULATA.

Suborder PERISSODACTYLA.

Equus burchelli, Burchell's Zebra.—£80 for newly imported specimens. I once saw one in a list offered at £10!!

Suborder ARTIODACTYLA.

Family BOVIDÆ.

Ovibos moschatus, Musk Ox.—£50 to £65. All these were newly imported calves.

Damaliscus albifrons, Blesbok.—£25 (in 1871).

Connochætes taurinus, Brindled Gnu.—£80 (young).

Gazella bennetti, Indian Gazelle.—£6.

G. dorcas, Dorcas Gazelle.—£6.

Oryx leucoryx, Leucoryx.—£50 (given by Lord Derby in 1837).

Addax nasomaculatus.—£114 (given by Lord Derby about 1840 for a pair of Addax, together with a male Leucoryx).

Family GIRAFFIDÆ.

Giraffa camelopardalis, Northern Giraffe.—£1800 (given by Wombwell for his first pair of Giraffes—an enormous price. They died before their special exhibition cage could be finished. He soon after bought four more for £2000, but all died in four months!)

Order EDENTATA.

Family DASYPODIDÆ.

Dasypus villosus, Hairy Armadillo.—£1 10s. to £2.

D. sexcinctus, Six-banded Armadillo.—£2.

Cycloturus didactylus, Two-toed Anteater.—£3 (price paid by the Zoological Society in 1854).

Orycteropus capensis, Cape Aard Vark.—£150 (in 1869).

Order MARSUPIALIA.

Family MACROPODIDÆ.

Macropus robustus, Wallaroo Kangaroo.—£20.

M. bennetti, Bennett's Wallaby.—£5.

Family PHALANGERIDÆ.

Petaurus breviceps, Short-headed Phalanger.—£3 (pair).

Family DASYURIDÆ.

Sarcophilus ursinus, Tasmanian Devil.—£3 5s. (Wombwell's auction sale).

Class AVES.

Order PASSERES.

Urocissa occipitalis, Himalayan Blue Pie.—£2 10s.

Paradisea minor, Lesser Bird of Paradise.—£30 (male).

Sericulus melinus, Regent Bird.—£6.

Lamprotornis caudatus, Long-tailed Glossy Starling.—£1 15s. to £2.

Lamprocolius chalybeus, Green Glossy Starling.—£1.

Oriolus kundoo, Sykes's Oriole.—£1 10s.

Garrulax sinensis, Chinese Jay Thrush.—£1 10s.

Order PICARIÆ.

Colius striatus, Striated Mouse-bird.—£1 10s.

Buceros rhinoceros, Rhinoceros Hornbill.—£20.

Dichoceros bicornis, Concave-casqued Hornbill.—£16 asked for a young pair.

Sphagolobus atratus, Black Hornbill.—£3 to £4. I once knew a fine healthy specimen change hands at £1 10s.!

Guira sp.?, Guira Cuckoo.—£1 10s.

Eudynamis honorata, Koel Cuckoo.—£1 10s.

Order PSITTACI.

Trichoglossus forsteni, Forsten's Lorikeet.—16s.

Order STRIGES.

Syrnium torquatum, Collared Owl.—£3 10s.

Carine noctua, Little Owl.—5s.

Order ACCIPITRES.

Serpentarius secretarius, Secretary Bird.—£15.

Sarcorhamphus gryphus, Condor.—£15 (this was a veteran forty years old, which changed hands at the sale of Wombwell's No. 1 menagerie at Edinburgh in April, 1872).

Order STEGANOPODES.

Ibis æthiopica, Sacred Ibis.—£1 10s.

Tigriosoma lineatum, Tiger Bittern.—£3 5s. (or £3 10s.) for an immature pair.

Order COLUMBÆ.

Æna capensis, Cape Long-tailed Dove.—12s. 6d. "pair." As a rule this means a couple of male birds, the hens being seldom imported.

Goura coronata, Common Crowned Pigeon.—£6 per pair.

G. victoria, Queen Victoria's Crowned Pigeon.—£30 per pair.

Chalcophaps indica, Green-winged Pigeon.—£1 10s. per pair.

Calenas nicobarica, Nicobar Pigeon.—£1 5s. asked for a single (acclimatized) bird.

Numida vulturina, Vulturine Guinea-fowl.—£8 per pair.

Order FULICARIÆ.

Porphyrio porphyrio, Violet Gallinule.—£1 5s. each.

Tribonyx mortieri, Mortier's Waterhen.—£1 5s. each.

Order ALECTORIDES.

Cariama cristata, Common Seriema.—£2 10s. each (once).

Grus virgo, Demoiselle Crane.—£4 10s. per pair.

G. antigone, Sarus Crane.—£25 per pair.

Order IMPENNES.

Spheniscus demersus, Jackass Penguin.—£2 each.

Order CRYPTURI.

Rhynchotus rufescens, Giant Tinamu.—£1 5s. each.

Class REPTILIA.

Boa constrictor, Common Boa.—£75 was given by Wombwell for his first pair of these reptiles. Youngsters can be purchased at 10s. each; "good-sized" examples for about £2.

Vipera arietans, Puff Adder.—£2 10s.

Crocodylus americanus, Sharp-nosed Crocodile.—£1 (for a foot-long specimen).

Chrysemys concinna, Terrapin.—6s. (young).

Cachuga tectum, Black and Yellow Batagur.—2s. 6d.

Testudo tabulata, Brazilian Tortoise.—15s. to £1.

Class AMPHIBIA.

Bufo melanostictus, Indian Toad.—5s.

B. mauritanicus, Moorish Toad.—10s. (asked).

Xenopus laevis, "Plathander" or Smooth-clawed Frog.—3s.

Proteus anguinus, Olm.—5s.

Class PISCES.

Ceratodus forsteri, Australian Lung Fish.—£50.

THE VOCAL AND INSTRUMENTAL MUSIC OF INSECTS.

BY A. H. SWINTON.

My earliest interest in the music of the Cicadas was awakened by the Greek Anthology, whose odes transport the reader to the Grecian colonies, and inspire a wish to hear their convivial melody; I have listened to Arab and Spanish workmen rattle off such ditties after sipping at the wine-bag, when the sun grew hot, regardless of epigram and prosody. Why the autochthons of the old territory of Locris made so merry while those of Reggio continued glum remained a mystery until I reverted to the hypothesis that the southern shore of the Italian toe received the sunlight early when the eastern crags of Reggio slept in gloom.

One day I left the folios of the British Museum Reading Room and looked in on the late obliging Frederick Smith, in order to see the objects that so enchanted the Grecian musicians, one of whom, it is said, gained the prize for Eunomus when his harp-string snapped; and certainly the designs of the dessicated vocalists were curiously interesting, but I felt the cold shudder of a frequenter of music-halls who beholds harps, violins, drums, and fifes piled up on a music-stand. What I learnt was that each Cicada carried two ribbed kettledrums slung away at either side, and beneath its body there were two corresponding membranes like battledores concealed by variously fashioned flaps.

Summer came, with its rambles, and on the 2nd of June, 1871, I found myself sitting at a deal table in a New Forest inn, where Mr. Capper, of Liverpool, and an invalid gentleman of the name of Owen, who had driven through the Forest with an intelligent lad, were setting a very complete assortment of local butterflies and moths, and among their treasures I espied a specimen of the little *Cicadetta montana*, which they told me they had just beaten from a hawthorn-bush. Richard Weaver, in 'Loudon's

Magazine of Natural History' for 1832, where he calls it *hæmatodes*, has informed collectors of the ferny groves it haunted, and here some enthusiasts have heard a male practising a dithyrambic; but I went out and shook the milk-white blossoms in vain. Returning to my books, I learnt that the late Prof. Carus, having a kindred desire to hear a Cicada sing, and failing to do so in Germany, decided to travel south to Italy. Consequently, in the spring of 1878, I enlisted the sympathies of an elderly relative who retained reminiscences of the grand tour, and induced her, with reluctance, to revisit the classic fields; indeed, when we went past Avignon and came in sight of the grey olives, I heard her exclaim that she "never wished to see them again." However, we arrived safe at Verona in the pleasant month of May, and having duteously visited the amphitheatre and supposed tomb of Juliet, I found myself at liberty to walk in the meadows where the field-cricketts were chirping and the Adige runs swift and deep. Here I discovered the cockchafer-like grub of a Cicada that had come out of the ground to enjoy the balmy air. I was then hurried south on a circular tour to the island of Capri, where the hotel waiter assured me the Cicadas would not sing before the middle of June, that they were in full-voiced choir in August, and that when the cold breath of autumn came the ground was covered with their dead bodies. Then, after a prolonged stay at Anacapri, in view of Vesuvius, continually smoking or steaming, with no idea of an eruption, my lady relative commenced to entertain fears of encountering the summer heat, so we returned post-haste to Turin, where she left me to my meditations.

Anxious to hear the Cicada band, I forthwith secured a room—they called it a stanza—near the hostelry of Madonna del Pilone, which a Piedmontese woman, who spoke a little intelligible Italian, came daily to sweep out with a laconic greeting of "Bon serai." The morning after my arrival I took a stroll along the shady avenue that runs beside the smooth flowing River Po, where *Cicada orni* was already chirping among the bushes; and on the 16th of June I surprised a coterie collected among the poplars and acacias that overhung the smooth flowing river, occupied in singing overtures, *con amore*, to the harsh "kroax! kroax!" of the green frogs, raising their voices in a

dirl and a whistle that resembled the din of a grinder's wheel or of a watch running down—that commenced briskly, and in a quarter of a minute subsided. So contentious were they that one I captured continued to vociferate in my hand, raising its abdomen as it did so, and quivering, twitching, and dimpling its kettledrums, whose beautiful shell-like structure is exposed to view. Soon afterwards I noticed another Cicada whistling an air on a young and graceful poplar, and vibrating its wings with new delight. “Volete farmi descendere questo insetto,” said I to a fisherman who was passing by with a rod. “La cicala,” he replied, aiming a blow with good intentions, and ejaculating, as it darted off with a piteous cry, “seculo.” Proceeding further I beheld another, and now I ventured to shake the tree to dislodge it, but it only clung on the faster and screamed the louder; a third that I caused to take flight was unexpectedly seized by a bird as it flew, and disappeared down its throat with a mournful cry of “whee-whee!” Searching among the acacias I discovered what looked like shot-holes in the ground, and near at hand were the masks, the skins of the grubs, or nymphs, from which the Cicadas had emerged, still clinging by their empty legs. Later on, in July, the frogs were awake and croaking at six, at seven the birds were in song, the Cicadas were screeching at half-past nine, and then it was pleasant to sit in the shade and listen to the males sing in chorus to the “click-click!” of the water-wheel, where their dizzy din of “derde-derde!” interrupted with a monitory “tip-tip!” resounded, until the heat of noon enforced silence. At five in the afternoon, when the performance was over and silence had resumed its reign in the alcove, I saw a female *orni* wing swiftly to the vines that draped a sunny knoll that had lately been the scene of uproar. When placed in a box covered with gauze the Cicadas snarled like dogs, clung together as if sparring, and startled the gloom of night with snatches of song. “Happy the Cicada lives,” says a Greek epigram, “for they all have voiceless wives.” In July I became aware of the presence of the somewhat larger *Cicada plebeja*, whose kettledrums are covered, and sound as in a musical box. Hearing a noise resembling the sound of escaping steam among the pattering leaves of the aspens, I saw it lift its body for twenty seconds, and there came a ghostly refrain of “whee-

whay!" that might have been the parting sigh of the Sisters of Phaeton. As time went on I captured one of the performers, and examined the expanded membranes concealed by the flaps beneath its body, on whose surface I found two raised horny needles corresponding to the corresponding ones on the similarly placed ears of grasshoppers and moths, to which I discovered with some difficulty that a ganglion was similarly connected. These organs are more conspicuous in the male than in the female Cicada, and before leaving Madonna del Pilone I made some other careful drawings of their structure in *Tettigia orni* and *Tibicina hamatodes*, as would appear. Some of the Cicadas were cleared off by a small bird which sat on the bushes that grew on the sunny side of a hill, and twittered to provoke a response and discover their whereabouts; their choir in July was augmented by a smaller species that appeared on the scene with a scraping note of "chip-chip!" *Plebeja* ceased to sing on the 26th of July, and then the copper-shaking cries of *Cicada orni* alone resounded from the tall poplars and aspens, until, on the 1st of August, a mournful silence had settled on the shady avenue at the side of the Po. There is a well-known ride from Madonna del Pilone to the summit of the eminence of the Superga, where at times a grand panorama of the Alpine peaks can be enjoyed, but it should be accomplished before sunrise, for during the day they are obscured with haze. The thick-pated shepherd Corydon, with whom the poet Virgil was acquainted, must have lived somewhere on those mountains, where the Cicadas were accustomed to scream among the bay and myrtle scrub.

While sojourning with my relatives at Guildford, in Surrey, I made some drawings of the frescoes in St. Mary's Church, and the carvings on the castle wall. I read the local guide-books; the romantic adventures of the Plantagenet Kings captivated my imagination, and to satisfy my curiosity I took an antiquarian tour in 1884 down Western Europe, until I arrived at the mud-plastered town of Valladolid. On the 27th of June I took a walk in the public gardens, which were full of luxuriant blossoms, but so solitary it seemed a scene of some story such as is told in the 'Arabian Nights.' On arriving at the calm sunny waters of the Pisuega, where there were pleasure boats and rafts of timber floating, I again heard *Cicada plebeja* per-

forming with harp-like ring, seated aloft on the bordering poplars, and a sun-dazed workman beneath was singing ironically in response "hehehe-ha-ha!" In the afternoon of the 7th of July I strolled out along a shady avenue where ranks of Lombardy poplars rose on either side like church-steeples; it led out, if I recall, from the Convent of San Pablo, and I had not gone far when I arrived at a villa residence beset with mushroom-topped pines. It seemed the abode of eternal silence; its inmates probably had partaken of a hearty dinner and were asleep. They must have had evil dreams, for a deafening racket from the mushroom-topped pines of resinous violins—a croaking, squealing, cork-drawing, and bagpipe dirl, a cockatoo concert—announced that I was present at the nuptial revels of *Tettigia orni*, and I soon found I was at liberty to pick as many of the intoxicated bridegrooms off the sticky trees as I pleased, for they had drunk the spirit of turpentine, which is a poison to man, long and deep. In consequence I again lingered some little time to watch the indiarubber rebound of their kettledrums, and it then appeared that as these were seen to dimple the air escaped convulsively by an open spiracle immediately in front. Resuming my walk and proceeding a little further along the highway, I surprised a tiny Cicada seated on a tree about twelve feet from the ground, and just out of reach of my umbrella-net, that was making a tinkling noise resembling the rattle of a watch-chain. On the 12th of July they were cutting the barley on the sandy plain of Castile.

When I returned to Guildford I found some Cicadas that my sister had captured at the source of the Sutlej awaiting me. There was a brownish one (*Pycna repanda*), which she had found during a September tour in Cashmere in 1881; a brace of the *Pomponia surya*, which populates the tea-plantations of the Kangra Valley during July; and some other larger ones that came from the leafy slopes of the Himalayas—certain with bottle-glass wings and pointed flaps (*Platylomia saturata*) that were performing at Dhramsala; and the leathery-looking males of another kind (*Polyneura ducalis*), which struck up at Dhramsala and Dalhousie during July and August. Ladies residing at Guildford who had passed their lives in India assured me that my Cicadas rattled like an alarm-clock when the northward

sun brought to Murree the sweep of the south-west monsoon and the dripping days of July and August; but I should imagine the chaunt of "Taza-bi-Taza!" is not there so imperative, as many of these Oriental Cicadas possess a tyrant beauty in their suits of brown bestarred with gold and streaked with sunset hues; nor does it follow that because a Cicada is big and clumsy it is necessarily more noisy, for some of those with covered and concealed kettledrums have them inefficiently developed.

In the spring of 1896, Miss Swinton, of Warsash, who long maintained a village school, and in memory of whom a chapel was recently erected, gave me an introduction to a Mr. Joseph, a well-known missionary of German extraction, then residing at Jerusalem, which I had the common wish to see. I then took the train to Brindisi and crossed to Patras. The thick-warbled notes of the Nightingale did not resound from the evergreen oaks in the gardens at Athens, but I have listened to a splendid concert at Toulouse. All I saw of the Ilissus was a gutter in a back street, so-called. The towers and row of windmills that lined the port of Rhodes carried the imagination back some four or five hundred years. At Jaffa there was a talk of Sharks, and I was told that packs of Jackals, to whose tails, lashed together, Samson tied firebrands, came and howled of a winter night. There must have been a fine conflagration, for the fire consumed the shocks, standing corn, vineyards, and olives. As I passed over the plain of Sharon there was a fine glow of common poppies, called "Shaarari," and, coming to Lydda at noon, I saw the mirage creep round it like the inflowing tide, until its ruined church and ilex-bushes seemed to stand on an island, and the camels to come splashing through the water. Jerusalem, the waterless, lies on the top of a long line of hillocky limestone downs that at first sight resemble those you have left behind you at Dorking, in Surrey. No Lion now comes there from the swelling of the Jordan, and it would seem the sporting Crusaders heard the last one roar at Samaria. Once a large grey animal ran ruffling past me on the hills that stand about Jerusalem. I believe it was a Hyæna. Anacreon thought the Cicada a king, and Meleager, reclining beneath the plane-tree of Gadara, found consolation in the notes of one that was making merry on the sap, when the sun in summer leaves the Bermuda grass alone

green in the herbage, and the flocks of black Goats come over the hills browsing on the sticks and straws. It was at Jerusalem that Tasso places the enchanted grove of Armida, from which streamed red sap, such as exudes from elm or ivy. Mr. Wilson, the missionary, offered to ride with me to some such thicket when I mentioned I had walked to the supposed site of Kirjath-jearim and seen no trees; around Jerusalem the Arab women break them down for firewood. Above the town rise one or two date-palms that do not mature their fruit, as the site is too elevated, and the scattered foliage around is that of olive and mulberries. One day I trudged out to Bethlehem, and when passing by an enclosure I was startled by a dirl and a rattle that had a resemblance to the castanets. Afterwards, about the 9th of June, the small *Cicadatra atra* commenced to din incessantly on the tops of the purple globe thistles in the vineyards at Jerusalem; it varied in colour from black to a reddish ochre spotted with black, and, as the soil was a yellowish-red loam, the latter form would be protected from the pale-coloured Sparrows. Later on in the month the olives, hoary with red-berried mistle-toe, which, Canon Tristram told me, was not found nearer than the South of Spain, resounded to the croaking of *Tettigia orni*, whose notes rattled on until August. What is singular, one of my specimens of *Cicadatra atra* has an extra veinlet on the second ulnar area of the left wing that forms a triangular cell at its extremity. Mr. Distant has told me he has noticed similar instances in *Cicadæ* from all parts of the world, and I have since found a specimen of a gaudily coloured species (*Platypleura octoguttata*) that has an additional cell in the angle of the third and fourth areas, outlined with brown, so as to form a conspicuous wing-spot. On my return from the Holy Land, when passing the west end of Cyprus, a brisk easterly wind that was blowing through the gaps in the hills precipitated cloudlets that stood out like marble statues on the rocky shore, and took the semblance of the Assyrian Venus drawn by Swans; it seems most probable that deities of old were fashioned in cloudland.

The *Tettigia orni* is the Cicada of the pine that inspired the meditations of Lord Byron at Ravenna; the classical Plebeian Cicada is heard to strike its lyre in the Morea of Greece, and the Blood-red Cicada dwells among the vineyards. A French cousin

once brought me a *Tibicina hæmatodes* in a wicker-cage from Toulouse; it was a female and voiceless. Where the vine basks on the sunny banks at Toulouse, Solier showed experimentally that the music of *hæmatodes* was a "tom-toming" of kettle-drums. The primary distinction in the singing of Cicada is between those which perform with exposed or muffled kettle-drums—that of the cryptotympanic ending in an expiration that has been compared to the rush of a waterfall. Henry Walter Bates says, in the account of his trip up the River Amazon, that in the month of September the howling of Monkeys and screeching of the Parrots was accompanied by the songs of strange Cicadas; one large kind, which was more numerous up the river than at its mouth, perched high on the trees, set up a piercing chirp, which began with the usual harsh jarring tone that became rapidly shriller, and terminated in a long and loud note which resembled the steam-whistle of a locomotive. Half a dozen of these performers made a considerable item in the evening concert.

Foremost of the Fossorial Hymenoptera come the Solitary Ants, clad in prettily banded fur, whose female is apterous. These are met with perambulating sandy places, or, with other strange mimics, are dislodged from the nests of "Bumbles." They pass their lives among sticks and straws, and on the fore edge of the second joint of their hind body there is a protuberance with a file, with which, when seized, they make a soft sand-papery sound, indicating their resentment—a rattlesnake warning, sometimes followed by the infliction of a sharp sting. To these the little wasp-like species of *Crabro*, it is said, are distantly related; but what is singular, the fore wings of the Solitary Ants are veined like those of the "Bumbles," and those of the *Crabros* are widely different. This for the specialist and evolutionist to puzzle over: the male of *Crabro cribrarius*, who shows a kind of gauntlet on his fore legs resembling that of the fussy water-beetles in order to roughly seize its female, has always had the popularity conceded to the highwayman; and now the female of the large-headed, great-brained *C. cephalodes* is ready to ingratiate herself. I found the little hussy disporting on a cowparsnip-head at Totnes towards the end of July, when cowparsnips are in bloom, and placed her in a large glass jar

covered with gauze, which was daily filled with fresh flowers from the garden dusted over with sugar, and then, during the term of her brief life, when the sun shone out enjoyably, she wandered to and fro, and maintained an almost ceaseless bagpipe dirl, accompanied, and perhaps produced, by the three last ventrally shagreened segments of the body, that moved like a cornet-à-piston telescopically in and out, while the wings lay folded on the back, and, seen with a magnifying-glass, showed no indication of movement. Another small *Crabro* with green side bands I found at the same time Mr. Edward Saunders determined as *lituratus*, a species scattered over the central and southern counties, and tolerably plentiful at Bury St. Edmunds; it made no sound. Conjointly, I got word from Kew that a yellow thistle I picked, as suggested by my memoranda, at Sandwich, or failing at Stroud, near Canterbury, in September, 1870, when the Franco-German war caused excitement, was *Cathemus lanatus*, recorded in Dunn's 'Alien Flora of Britain,' p. 107, and said to be at home on waste places in Palestine. On the 21st of September of the same year I captured a newly disclosed male and female of the scarce Thorn Moth (*Eunomos alniaria*) at evening on a street-lamp post at Deal, which, in the days of Frederick Smith, was the happy hunting-ground of the entomologist. Strange instruments compose a brass band, but to imagine that the Sand Wasps are trumpets on beholding their slender forms is difficult. I have a note regarding a hymenopteron—I cannot think what—that when picked up by the wings near London smelt of garlic and the stew-pan, and continued to utter a noise from its spiracles, which became louder when the wings were allowed to vibrate; placed to the ear the sound was shrill, and the vibration of the thoracic muscles was palpable. *Sceliphron spirifex*, which looks as if its black hind body had been stuck on with a straw, I heard making a piping noise in the early autumn at Turin, while it busied itself collecting mud in a puddle, much as a cat hums like a church-organ when blest with a kitten, and at the same time its wings seemed to be in repose. Sometimes two or more were to be seen thus occupied. I next met with this lugubrious creature on the 23rd of July, 1896, in the town drain or gutter known as the Brook Kedron, whose history is that of the Fleet Ditch. Goureau

says that at the end of the autumn of 1836 he saw *Ammophila sabulosa* busy making a hole in the sand on the banks of the Rhone, and at the same time producing a continuous sound resembling that made by *Syritta pipiens*, with its wings in seeming repose; and Solier asserts that *Sphex arenaria* utters a cry each time it deposits its burden. If not spiracular, it is possible the piping of these Sand Wasps is made by the friction of the shagreened edges of the ventral plates of the abdomen which are overlapped by the dorsal.

Strolling over the cliffs of Sangatte, on the French coast, in the summer of 1876, when borings were made there for the construction of a Channel Tunnel, I used to see the little black *Dasygaster hirtipes* curled up asleep like a chimney sweep in the yellow composite flowers, brushes and all. Once I picked one of the blossoms and brought it, with the bee cradled inside, indoors, and placed it on the table; the bee, who was enjoying its highest sense of delight, never offered to move, and on being dislodged by accident coolly crawled back and tucked itself in again. On the 14th of July, the anniversary of the storming of the Bastille, at a quarter to eight in the morning, these somnolent bees celebrated their nuptial dance, consisting in a series of short aerial darts close to the ground against the briny air that blew, and then the females, proving the heavier, they were the first to desist and regain their favourite blossom, or fall plump on the earth, seeing which the males darted down, and the couples rolled over and over in the dust, or sometimes, by some strange mistake, three were thus seen engaged in hot contention. When coupled they maintained a "pip-piping!" as if they were commemorating their nuptials with the flute. It must have been about this time that the Curé of the village appeared on the scene with a man and wheelbarrow, in order to demonstrate that there was a seam of limestone containing fresh-water shells on the seaward face of the cliff. He afterwards took me to call on the doctor, who had unearthed the bones of a stranded Whale, but we found the house shut up and the doctor absent. The recent topography of the sandy plain at Calais, where the corn-fields are gay with poppies and bluebottles, is historically interesting. According to geologists the bed of the Channel has sunk down, and the beach at Sangatte is strewn with peat-balls

containing bits of reed and the elytra of green *Donacia* beetles or *gyrinus* that are washed in from submarine peat-beds, which may be seen at neap-tides; and that the shore has receded is the local opinion, for buildings stood where the sea has encroached. On the other hand, a charter of Louis VII., dated 1156, calls St. Omer, as the name might suggest, a town situated on the seashore, and maps of more recent date show a river flowing down from it that entered an inlet of the sea which crept in on the south side of Calais, and made Sangatte a promontory of the cliffs. Whether owing to blown sand pounded by the waves from the chalk flints or embankment, St. Omer, like Sandwich in Kent, no longer hears the wild sea waves. Thomas Mouffet relates that in the year 1552 he saw among the stones on the top of the Chatmell Hills two wasps that were fighting. I have seen *Vespa germanica* coupled in November. When the female hybernates she tucks in her wings. One day I saw a wasp flying about a branch where flies were basking in the sun, catch one with a snap, and, twirling it round in its jaws, slowly devour it. I secured the gourmand, and enclosed it with a "bumble," when I noticed that when the two came in contact they lifted themselves on their hinder legs and snapped defiance with their mandibles, or, fairly exasperated, they rolled over and indulged in a tourney, breast to breast, with extended stings. All the time the "bumble" maintained an angry vitreous whine; sometimes both hummed, and then usually their wings were agitated, but at times those of the "bumble" seemed in repose. Doctor Landois affirms that the male of *Bombus terrestris* hums in A, and its portly female a whole octave higher. The call of the queen bee to swarm is well known to bee-keepers. According to the 'Journal of Horticulture and Cottage Gardener' for January, 1876, the first queen that is matured cries in her cell, "off-off-off!" and, pushing the coverlid aside, joins the community; the other queens, as they come to maturity, also cry "off-off-off!" on hearing which the reigning queen runs to and fro in a temper, and screams "peep-peep!" which is a summons to migrate.

In Devonshire, where the twitter of a Wren in the hedge rarely recalls the clatter of the Cicada in sunnier climes, the Hover Flies that sparkle like gems from the casket make siren

melody that confers a charm to the wood-walk, where the green ribbons of the *Scolopendra* hang from the rocks, and the mossy trees are feathered over with polypody. As they here sit and sing to themselves they appear to keep their wings at rest, but, seen beneath a strong magnifying power, these are observed to be in ceaseless vibration, and when this ends the fly-music is no longer heard; yet, as Dr. Landois affirms, the melody is no doubt a fluting through the large spiracles of the metathorax, whose mouth is sometimes trumpet-shaped, as in *Syrphus baleatus*, or as in the larger *Heliophilus pendulus*, which I once carefully dissected, the two lips are covered within with a currycomb of thin membranes, suggestive of a Jew's-harp that blown upon returns a sharp sound. The little *Syrphus bifasciatus*, that balances in the air in May under the shade of the trees, and whose thorax glitters like a drop of gold as it descends when weary and sips at the blue *Veronica*, is wont to sing in contentment as it basks in sunshine on the nut-leaves; the yellow-banded *S. ribesii*, whose sluggish larva feeds on the green aphides that infest the rose-bushes when in flower at the end of June emerges from its cocoon, and afterwards, when the nuts are ripening, its enchanting melody is heard to resound like an Æolian harp where it sits recluse in sun and shade. I have heard its plaintive song in August, and it becomes a solace in the chilly days at the close of September, when the "sprink! sprink!" of the Cinereous Leaf-Cricket resounds in the blackberry-bushes. In August and September the larger *Sericomya borealis*, richly laced with gold, makes melody to itself on the moorland, and enclosed in a pill-box it continues its song. You may see it sitting and singing on the rugged Grampians, on the rocks that crown the tors of Devon, or on the Surrey hills, and I have met with it in Western France; but it is most frequently seen near brushwood that grows on damp spots. I believe I once saw the female ovipositing on a rotten stump. In the 'Proceedings' of the Entomological Society, new series, p. 85, it is stated that *Sericomya lapponum* or *lappona* makes a loud hum or buzzing during flight, and when at rest a note particularly shrill, loud, and distinct, as clear as that of a musician's pitch-key. It must be supposed that flies can hear, and that they take a delight in the songs they sing; certainly the Crane-flies have membranes on

either side at the base of the halteres, to be found with some little trouble, that suggest ear-drums.

The nuptial ceremonies of the short-lived flies are various. Friday, the 23rd of August, 1907, was fine, cloudy, and chilly in Devonshire, the wind blowing over the tors from the north, and the Swallows were flying high and wildly at noon in the scant sunshine of a woodland nook, where a wild clematis hung in festoons from a larch tree sixty or seventy feet high, up which it had clambered to the very top, a buzz as of bees fell on the ear that proceeded from a congregation of Drone Flies (*Eristalis tenax*) that were poising and chasing over the bushes on pairing intent; and in the pine forest of Bagnoles, in Normandy, on the 28th of July, 1908, I watched a male and female *Ciorrhina oxycathæ* chasing round and round among the ferns and whortleberry-bushes until they coupled. In Bingley's 'Animal Biography' we read that the males of *Tabanus bovinus* and *Chrysops cæcutiens* are fond of flowers, and that towards the close of day they are frequently seen to fly round and round in the air for the purpose of inviting their females, who prefer to prick animals for their juices, sending the cows wild with terror. I once encountered a terrible swarm of "clegs" or forest flies in the fir-woods at Fribourg, in Switzerland; I never saw the like in England or in Scotland. On the 17th of August, during the drought that prevailed at the commencement of the autumn of 1908, I found myself on a hillside above the 'Dartmoor Forest Inn' amid a noonday swarm of circling Breeze Flies (*Gastrophilus equi*), that the Rev. Mr. Kirby calls "horse-bees"—grey-brown, mousy "bumbles" with faded wing-spots they seem to be, and yet two-winged flies. Those I captured were males, and when confined in pill-boxes they whined with all the impetuosity of bees whose brains seem confined in too small a body. Solier says:—"On the 9th of July I saw two *Chrysotoxum arcuatum* perched, one on the branch of a fir and the other on the leaf of a neighbouring beech, and both were uttering a shrill sound; flying away, they returned and settled nearer one another, and recommenced their song. When in the air they seemed to seize one another, and sometimes they fell to the ground. When they settled again and began to hum I plainly saw a vibration of the wings, and the sound intensified as it increased. The species of

Merodon also hum when they couple." In these cases it is natural to suppose that the flies hold sweet converse, and that they possess an attentive ear. The strangest courtship is that of *Dolichopus nobilitatis*, which I witnessed in a wet meadow near Maida Hill, in London; the female sat drinking on a puddle, and the male took flying leaps in quick succession around her head. I depicted the scene in my 'Insect Variety.'

The minute *Syritta pipiens*, with thick hind thighs, that nestles in the dandelion-flower at the side of the hedge, when seized by a passer-by, intimates its resentment in a cry of "pip-peep!" whence its specific nickname. The bluebottle flies—for there are two in the kitchen, one has red cheeks and the other a red beard—when caught in a spider's web, throw the wing that is free into vibration, and whine piteously.

On the 15th of June, 1874, the weather, which in Perthshire had been bitterly cold, grew milder; I then arrived with my relatives at Comrie, where mice afflicted with a kind of croup might be heard squealing on the damp spots, "whit-wee-wee-wee-way!" They were whistling at noon and whistling at ten o'clock at night, when the moths were fluttering about in the bushes. On the 16th I visited St. Fillans to see certain wych-elms mentioned by Sir Walter Scott, which did not grow there, but I heard a hover fly whining loud in a sunny hedge, and, proceeding to the spot, I found it struggling with a sulphur-belted sawfly. I captured both and placed them in a box covered with gauze, when the fly crouched at the bottom and continued its plaintive cry, while the bee walked about on the gauze with circumspection; but a few seconds had elapsed when in an after-thought it darted down and decapitated the fly. These notes seem to indicate fear or resentment; it would be curious to know how they influenced the actions of the spider or sawfly.

SOME GENERIC NAMES THAT HAVE BEEN OMITTED FROM RECENT ZOOLOGICAL INDICES.

BY ROBERT T. LEIPER, M.B., F.Z.S.,
Helminthologist to the London School of Tropical Medicine.

THE following list of forty-three names comprises the generic names of Polychæta that, proposed before 1880, do not appear in the 'Nomenclator Zoologicus' of Scudder, the 'Index Zoologicus,' or the more recent Supplements thereto by Waterhouse and Bergroth:—

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| Amblyosyllis, <i>Grube & Oersted</i> , 1857. | Leipoceras, <i>Mopius</i> , 1874. |
| Amphicorina, <i>Quatrefages</i> , 1865. | Lénora, <i>Grube</i> , 1878. |
| Aphlebina, <i>Quatrefages</i> , 1865. | Lepiphile, <i>Malmgren</i> , 1867. |
| Ascosoma, <i>Leuckart</i> , 1838. | Maldane, <i>Kinberg</i> , 1866. |
| Astægia, <i>Kinberg</i> , 1868. | Myxicola (<i>Grube</i>), <i>Quatrefages</i> , 1865. |
| Canephorus, <i>Grube</i> , 1851. | Neanthes, <i>Kinberg</i> , 1866. |
| Cirrobranchia, <i>Ehlers</i> , 1868. | Opisthosyllis, <i>Langerhans</i> , 1879. |
| Choleia, <i>Savigny</i> , 1820. | Orbinia, <i>Quatrefages</i> , 1865. |
| Chone, <i>Kroyer</i> , 1856. | Pæcilochætus, <i>Claparède</i> , 1874. |
| Cirrineris, <i>Blainville</i> , 1815-28. | Paleanotus, <i>Schmarda</i> , 1861. |
| Cirrosyllis, <i>Schmarda</i> , 1861. | Palmyra, <i>Savigny</i> , 1817. |
| Codonytes, <i>Delle Chiaje</i> , 1841. | Platysyllis, <i>Grube</i> , 1878. |
| Dasybranchus, <i>Grube</i> , 1851. | Polyophthalmus, <i>Quatrefages</i> , 1865. |
| Dentalium, <i>Grube</i> , 1851. | Prionosyllis, <i>Malmgren</i> , 1867. |
| Doyeria, <i>Quatrefages</i> , 1844. | Rytocephalus, <i>Quatrefages</i> , 1865. |
| Eunereis, <i>Malmgren</i> , 1865. | Thelepus, <i>Leuckart</i> , 1849. |
| Eurysyllis, <i>Ehlers</i> , 1864. | Thomora, <i>Baird</i> , 1865. |
| Flemingia, <i>Johnston</i> , 1845. | Torea, <i>Quatrefages</i> , 1865. |
| Genetosyllis, <i>Malmgren</i> , 1865. | Trichosyllis, <i>Quatrefages</i> , 1865. |
| Iphinereis, <i>Malmgren</i> , 1865. | Turbanella, <i>Schultze</i> , 1853. |
| Irma, <i>Grube</i> , 1878. | Vandanis. |
| Lanessa, <i>Malmgren</i> , 1865. | |

NOTES AND QUERIES.

MAMMALIA.

Barbastelle (*Barbastella barbastellus*) in Hertfordshire.—On Sept. 6th I found a Barbastelle at Frithsden Beeches, near Berkhamstead. The Bat (a female) was clinging, suspended by its toes, asleep, to the trunk of a beech beneath a piece of loose bark. I was able to keep it alive and in good health for a few days, and to make some notes on its habits and demeanour in captivity. When I took it from its resting-place on the tree, and subsequently, it uttered a querulous squeak similar to that of many Bats, and during the first day or two of its captivity it occasionally uttered another note, when I handled it—a curious subdued buzzing, quite unlike anything I have heard in other species. It slept sometimes prone upon the floor of the cage in which it was confined, sometimes suspended by its toes. Its gait was similar in kind to that of other vespertilionid Bats—the typical quadrupedal walk, a foot being first advanced, then the fore limb on the same side, next the other foot, and, lastly, the second fore limb—but the legs were carried more wide of the body than they are by, for instance, a Noctule or Long-eared Bat. The flight was slow and fluttering, generally performed in the upper part of the room, but occasionally close to the floor among the legs of the chairs and table. The tail was extended and only slightly decurved. As the legs were held wide apart, the interfemoral membrane looked very large when viewed from beneath. The Bat showed the usual ability of its kind to avoid collision, and never touched an object unless it intended to alight upon it. As a rule, it turned in the air before alighting and pitched feet uppermost, facing in the direction opposite to that of its course, and obviously in the most convenient posture for taking flight again. It often attempted to alight on the ceiling, but failed to obtain a foothold on the smooth surface. Its action, however, suggested that it would have no difficulty in pitching feet uppermost on the rough roof of a cave. This mode of alighting is invariable with the Horseshoe Bats, and is occasionally adopted by Natterer's Bat. At times, however, though rarely, the Barbastelle would pitch head uppermost, or with the head at right angles to the direction of

its flight, and immediately shuffle round in order to assume the inverted position, as is the usual custom of our British vespertilionid species. The difficulty I at first experienced in getting the Bat to eat was overcome by smearing the expressed juices of a mealworm upon its nose; thereafter it ate eight or nine of these insects each evening. It persistently refused to eat some cockroaches which I put in the cage with it, and indeed seemed to be afraid of them, starting back nervously when it encountered one in its rambles on the cage-floor. After some coaxing I induced it to seize a cockroach as I held it in my hand, and it consumed it entirely, but would not take another. If permitted to do so, it always ate on the wing, rising with ease from the table on which I fed it. I never saw the Bat use the interfemoral membrane as a pouch to assist it in adjusting its grip on its prey; it seemed quite capable of overcoming the struggles of the mealworms, and a cockroach is always a spiritless, submissive creature when seized by a Bat. On two occasions, it is true, particularly vigorous mealworms were thrust for a moment beneath the Bat's belly, although not right into the interfemoral, and I have little doubt that if occasion required the membrane would function as a pouch, as it does in other species. House-flies were adroitly picked off the ceiling and consumed as the Bat flew about the room.—CHARLES OLDHAM (Essex House, Watford).

Notes on the Tuco-Tuco and the Hairy Armadillo.—The congregations of mounds of sand seen by Mr. L. E. Adams, and the sounds which he renders "Touc-Touc" (*ante*, p. 342), are made by some small rodents called Tuco-Tucos (*Ctenomys*), which live in colonies. The collections of mounds and burrows are called "tuco-tuconales," and it is necessary to ride carefully and slowly over them, the ground often giving way under your horse's feet. They are also very laborious to walk over, being sometimes extensive and very soft. Indeed, "tuco-tuconales" are among the things which you have to keep a sharp look-out for when galloping over the "camp," and soon instinctively dislike. Few people have seen a Tuco-Tuco alive and above ground of its own accord, and they seem rarely to come to the surface; perhaps they may do so at night. I obtained the remains of two species in Uruguay, viz. *C. brasiliensis* and *C. magellanicus*. The comparatively educated man who told Mr. Adams that the "Touc-Touc" was the same as the "Peludo" was, it is almost unnecessary to say, wrong—very wrong. Pelúdo is the name always used in the Uruguay camp for the Hairy Armadillo (*Dasypus sexcinctus*); it is a slightly different species to that found about Buenos Ayres (*D. villosus*), to

which Mr. Adams's note applies, but the two species are not generally distinguished, and the name Pelúdo is applied to both. And if Mr. Adams asked the Gaucho at the tuco-tuconale to catch him a Pelúdo, this would account for his getting an Armadillo. It is to some extent an omnivorous and carrion-feeder. I have never met with the name "Meluta," and do not know what it would mean. There is, I believe, no Spanish word like it. The little "Mulita" (*Tatusia septemcincta*), or "little mule," so called from its ears, is the small Armadillo which is eaten in the camp, and occasionally used to figure on the menu at the hotels in Montevideo. I had one alive, and found it exceedingly quiet and gentle in its manners. I do not think anyone I ever talked to about it, and who knew its reputation as a carrion-feeder, would think of eating the Pelúdo.—O. V. APLIN (Bloxham, Oxon).

A V E S.

Sylvia nisoria in Norfolk.—On Sept. 11th, Mr. H. A. V. Maynard, who was shooting with me at Cley, in Norfolk, secured an immature Barred Warbler. It was the only bird in the bushes, where it appeared about twelve o'clock, after a wet morning with north-west wind. It was a very conspicuous bird owing to its size and light colour. It showed no inclination to skulk, and its flight was buoyant. I am almost sure that we saw a Pectoral Sandpiper several times between the 1st and the 17th. I could always separate it at a glance from a flock of Dunlin, and I watched it once through glasses at about twenty yards.—E. C. ARNOLD (Eastbourne College).

Nesting of the Wryneck (*Iynx torquilla*).—

June 3rd.—First egg laid in nesting-box in my garden.

4th.—7 p.m. Two eggs.

5th.—8.30 p.m. Wryneck inside box, evidently intending to sleep therein, and not afterwards disturbed.

6th.—7 a.m. Four eggs in nest; bird not inside, and eggs cold.

11th.—A clutch of nine eggs now laid. Unfortunately I had been absent from home since the previous note, so I was unable to record on what day incubation actually commenced.

21st.—6.30 p.m. Four young and five eggs, one of which is addled.

22nd.—7 a.m. Five young; 7 p.m., six young.

23rd.—7 a.m. Six young; 7 p.m., seven young.

24th.—7 a.m. Seven young, one of which being dead is, with the addled egg, removed; 7 p.m., the remaining egg hatched. Incuba-

tion, therefore, takes thirteen or fourteen days. There is naturally a striking difference in the size of the young, owing to the continued laying after incubation has commenced.

July 1st.—Another dead young one removed from the nest, leaving a brood of six in all.

12th.—9 a.m. Four young have left the nest since yesterday morning, two now remaining; 9 p.m., both still in nest.

13th.—9 p.m. Only one remains.

14th.—7.30 p.m. Nesting-box empty, the young having remained within their nesting abode about twenty-one days. — J. STEELE-ELLIOTT (Dowles Manor, Shropshire).

Nesting of *Alcedo ispida*. — I can find no reference to the Kingfisher utilizing the same nesting-hole year by year, but when the nesting-site remains undisturbed it does not appear to be very unusual. Several instances have come under my personal notice, more particularly a pair that have nested close to my house for the last six years (with but one exception) have used the same excavation. Each year a spring-cleaning takes place, and the old bones are ejected before the nest-cavity is re-lined with fresh pellets. I have never yet satisfied myself that this particular pair have reared two broods in any one season.—J. STEELE-ELLIOTT (Dowles Manor, Shropshire).

Red-footed Falcon in Norfolk. — While staying in Norfolk, in September, I called on Mr. R. Clarke, the birdstuffer, at Snettisham, who showed me a female Red-footed Falcon (*Falco vespertinus*), which was shot near Sandringham about the middle of June, and taken to him for preservation. I ventured to question the accuracy of the Sparrow-Hawk eyes which he had put in, but he assured me they were right.—JULIAN G. TUCK (Tostock Rectory, Bury St. Edmunds, Suffolk).

Glossy Ibises (*Plegadis falcinellus*) on the Northumberland Coast. —A party of five Glossy Ibises visited the coast of Northumberland at the end of August this year. They were first seen at Boulmer, a small fishing village to the north of Alnmouth, about noon on Sunday, Aug. 30th; they were then flying in single file, and appeared to have just come in from the sea. Later in the day some boys were chasing them and throwing stones at them close to Alnmouth. Probably the birds were tired out, for subsequently they were very difficult to approach. Eventually two were shot (Sept. 1st and 3rd) by Mr. Thomas Jefferson, of Alnmouth, and presented by him to the Hancock Museum, Newcastle-on-Tyne. A third was picked up dead, and a fourth was caught in a trap the following week (about Sept. 9th), and

was kept alive at Warkworth for a few days by Mr. D. Deuchar, for whom it has since been preserved. Mr. Jefferson has furnished me with an interesting account of the birds; in it he remarks that they frequented the small burns near the coast rather than the coast itself, and that when disturbed they always flew inland. From their first arrival they remained in the immediate neighbourhood of Alnmouth. Of the two Ibises received at the Hancock Museum, one is decidedly larger than the other. There is a difference of practically an inch in length of bill ($5\frac{1}{16}$ in. and $4\frac{3}{16}$ in.), and other measurements differ in the same proportion. Both birds are in immature plumage—back dark iridescent green, head and neck dusky brown, with spots and streaks of white; but in the larger bird the feathering, especially on the breast, is distinctly closer and more mature-looking, and this, combined with the difference in size, suggests that this bird is in its second year, whereas the other is in its first.—E. LEONARD GILL.

Glossy Ibis at North Devon.—On Sept. 5th, 1906, I noticed, among some Gulls on the mud by the river at Barnstaple, Devon, a specimen of the Glossy Ibis (*Ibis falcinellus*), I am afraid I have been very remiss in not recording it before. Possibly some other observer has done so; if not, however, this may be of some slight use.—N. P. FENWICK, Jun. (The Gables, New Road, Esher).

[Mr. Bruce Cummings recorded in these pages (1907, p. 21) that about the beginning of September, 1906, a Glossy Ibis was shot on the River Taw near Fremington, and was placed in the hands of the Barnstaple taxidermist for preservation. This is probably the bird seen by Mr. Fenwick.—ED.]

Incursion of Godwits at Yarmouth.—Not for at least eighteen years have so many Bar-tailed Godwits (*Limosa lapponica*) put in an appearance on our Breydon mud-flats as were observed during the earlier days of September. It was usually on the spring migration that this species was commonly looked for in the earlier half of the last century, when the "12th of May—Godwit day" was hailed by local gunners with considerable excitement. I have recorded ('Nature in Eastern Norfolk,' p. 237) where Gibbs, an old punt-gunner, still living, saw in the early seventies, during an easterly gale, "hundreds of thousands" constantly coming from the south-west (inland direction). I have known many a May pass by without any number, and sometimes without an individual being seen. The past May was remarkable by their scarcity. The prevalent winds were, I believe, southerly or thereabouts, and of no abnormal velocity, and what

accounted for the incursion I am at a loss to suggest. I saw a large flock on Sept. 7th, amounting to probably three hundred birds, feeding leisurely on a mud-flat, in spite of the incessant fusillade in various other directions, where smaller flocks were on the move—Knots, Curlews, Redshanks, and Whimbrel—to which at dusk an immense flight of Terns were to be added, making Breydon exceptionally lively. Every lout who knew one end of a gun from the other obtained his quota of the chicken-tame birds, which were mostly young and exceptionally fat. On the morning of the 7th I accosted a shoe-black who owns one of those “murderous” weapons—a converted rifle, whose face was bandaged with hospital wrappings. “What have you done?” I asked. “Oh,” said he, “the cartridge bust, and went off at the wrong ind of the gun; *but I’d got eight godwicks afore I done it.*” There was no sale for the victims, the taste for shore-birds having become practically extinct in Yarmouth, where not even a game-stall other than for *bona fide* game-birds now remains since the death of Durrant, of some reputation as a wildfowler himself. Gunners mostly cooked their own birds.—ARTHUR H. PATTERSON (Ibis House, Great Yarmouth).

Unusual Site for a Great Black-backed Gull’s Nest.—This summer Mr. E. H. Perry Knox Gore found a nest with three eggs on the low gravelly island—The Luck—near Killala. The Luck is a breeding haunt of Common, Arctic, and Lesser Terns. The nest was placed so low on the shore of the island that an unusually high tide would have reached it. The nearest breeding haunt of the Great Black-backed Gull is the pillar-like Rock of Doonerista of Downpatrick Head, ten miles west.—ROBERT WARREN (Moy View).

Fulmar Petrel in the Firth of Forth.—On July 16th last, while on a visit to the Bass Rock, we found a Fulmar Petrel (*Fulmarus glacialis*) dead on the shore at Canty Bay, near North Berwick. On the following day one of the lighthouse-keepers, without knowing of our find, told us that a pair had nested on the Bass Rock two years ago, which he said was the first time the Fulmar had been known to breed so far south. However this may be, we thought its occurrence in the Firth of Forth this year should be recorded. The bird, which was not in a good state for preservation when found, is now in our possession.—W. & T. MALLOCH (Mount Pleasant, Johnstone, Renfrewshire).

September Movement of Shearwaters.—An extensive movement seems to take place with the Manx Shearwater (*Puffinus anglorum*)

in the latter end of August or early in September, during which a certain number get lost and wander inland. There are eleven instances of the occurrence of this bird in Oxfordshire or just over the borders. The month in which three of these occurred is not known. Six occurred in September, one at the end of August or early in September, and the eighth in August. This year Mr. Fowler sent me one which came from Leadenhall Market. It arrived on Sept. 21st in an advanced state of decomposition, and so was probably captured early in the month; and Mr. Whitaker kindly writes me word that one occurred at Mansfield on Sept. 15th.—O. V. APLIN (Bloxham, Oxon).

Since writing this note I have heard from Mr. Calvert that a Manx Shearwater was picked up dead in a field at Aldsworth, Gloucestershire, between two and three miles over our borders, about Sept. 15th.—O. V. A.

AMPHIBIA.

"Vertebrates of Wales and Ireland."—In the interesting notes by Mr. H. E. Forrest on the "Vertebrates of Wales and Ireland" there is a statement that I beg to correct, *viz.* that "the Toad is absent from Ireland" (*ante*, p. 323). This is accurate regarding the Common Toad, but in parts of Co. Kerry the Natterjack Toad is met with, but whether indigenous or introduced, as is said of the Frogs, I cannot say.—ROBERT WARREN (Moy View, Ballina).

[Mr. Forrest informs us he is sending some brief Corrigenda for insertion in the December 'Zoologist.'—ED.]

NOTICES OF NEW BOOKS.

From Ruwenzori to the Congo ; a Naturalist's Journey across Africa. By A. F. R. WOLLASTON. John Murray.

THE "Mountains of the Moon" or Ruwenzori, in Equatorial Africa, discovered by Stanley in 1888, have greatly interested zoologists as well as geographers. To a zoologist, Mr. Ogilvie-Grant may be given the credit for the inception of the expedition, whose journey is described in this volume, and to which Dr. Wollaston acted as medical adviser, and collector in the botanical and entomological departments. The considerable and valuable material—both zoological and botanical—was intended from the first for the British Museum, and much more will be heard of it during the next few months in a series of reports made by the staff of that institution in the 'Transactions of the Zoological Society of London.' The botanical results have already appeared in the 'Journal of the Linnean Society.'

This volume describes more particularly the country in which these collections were made, and by a wealth of photographic illustration gives a full introduction to the geographical, botanical, and anthropological features of the region—in fact, of the environment of the many species collected. Those who peruse books on African travel cannot neglect it, and to those who study the collections it is indispensable.

We are glad to read, in contradiction to our experience in the Transvaal, that despite the current idea that it is only in Europe the birds can sing, Dr. Wollaston heard in Uganda and in the neighbouring parts of the Congo State "such a morning chorus of birds as can only be equalled at a May sunrise at home." At Kamimbi the *Chef de Poste*, Lieutenant de Rossi, had a wonderful faculty of taming the birds and beasts with which his house was filled. A young half-grown Chimpanzee had acquired an extraordinary affection for him, and would

hardly let him go out of its sight. "It used to sit on a chair at the dinner-table and drink its soup with a spoon in the most ludicrously grown-up manner." Chimpanzees go far up the mountains in search of food, and traces of them were found on Ruwenzori at a height of nearly ten thousand feet, where they had been feeding on the berries of a podocarpus.

Dr. Wollaston is of opinion that the Okapi is probably more plentiful, or less scarce, in the Semliki and Ituri forests than elsewhere. The Pygmies, who can climb trees like a Squirrel, and can pass through the thickest jungle without disturbing a twig, shoot these animals occasionally with spears or arrows, and sometimes catch them in traps, "and it is through them that most of the Okapis now in Europe have been obtained." Lions are not absent from the east side of Ruwenzori. "On one occasion a party of Lions elected to spend a 'week-end' pig-hunting in the valley. Between Saturday and Monday they killed four wild pigs within half a mile of the camp, and, according to those who were there at the time, the shrieking of the unhappy victims was most terrible to hear." In Africa certain birds always remind us of home, and at Lake Naivasha Dr. Wollaston's party disturbed a pair of Greenshanks, "which whistled as they went away, and reminded me of many happy days spent searching for their nests in Sutherland."

How to Attract and Protect Wild Birds. By MARTIN HIESEMANN.
Translated by EMMA S. BUCHHEIM. Witherby & Co.

THIS is an excellent brochure on a fascinating subject, and one of no inconsiderable importance to the horticulturist and forester. The author was commissioned to give a clear account of the principles and of the measures which Baron von Berlepsch has advocated and successfully carried out on his estate at Seebach, in the district of Langensalza, in Thuringia, and no reader of his pages will deny that he has ably fulfilled his task. It is now a decade since Mr. Masefield gave us his small book on "Wild Bird Protection and Nesting-boxes," and those who possess it should place Martin Hiesemann's publication by its side.

Some quotations given from Baron von Berlepsch are at the very root of the undertaking: "We can only preserve and increase our birds in the long run by restoring to them the necessary conditions of life—above all, the opportunities for nesting of which we have robbed them." The Baron, after years of observation, had established the fact that the nesting-holes which the birds preferred were deserted or uninhabited Woodpecker holes. This led him to conceive the idea of continuing the work of the Woodpecker by the hand of man—in other words, to make close imitations of the Woodpecker holes, and which should be exact copies of Nature. These nesting-boxes are well described and fully figured. There are also chapters on "Provision of Nesting-places for Birds breeding in the Open," on the "Feeding of Birds in Winter," and on the "Suppression of the Enemies of Birds." In the latter category the Squirrel and the Jay are fully convicted.

The wide circulation of this or similar publications will in many cases do as much good as a prohibitive Act of Parliament.





GOLDEN EAGLE (*Aquila chrysaetos*).